

## CLAIMS

What is claimed is:

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- 1 1. A method comprising:  
2 maintaining a state of a cache line indicated by a first node;  
3 in response to a request from a second node to access the cache line, determining  
4 whether the state is an ambiguous state; and  
5 resolving the ambiguous state.
  - 1 2. The method of claim 1 wherein maintaining the state comprises maintaining a  
2 presence vector indicating whether the first node has a copy of a contents  
3 corresponding to the cache line.
  - 1 3. The method of claim 2 wherein the presence vector further indicates whether the  
2 state is a Shared state or an Exclusive state.
  - 1 4. The method of claim 1 wherein resolving the ambiguous state comprises snooping  
2 the first node for a current status of the cache line.
  - 1 5. The method of claim 4 further comprising receiving a modified contents of the  
2 cache line.
  - 1 6. The method of claim 5 further comprising updating a memory location designated  
2 for storing a contents of the cache line.
  - 1 7. The method of claim 6 wherein the memory location resides on a third node.
  - 1 8. The method of claim 1 further comprising completing the request.

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- 1 9. A method comprising:
  - 2 maintaining a state of a cache line indicated by a first node of a plurality
  - 3 of nodes in a shared memory system having a copy of a contents stored in
  - 4 a memory location on a second node of the plurality of nodes;
  - 5 in response to receiving a request from a third node of the plurality of
  - 6 nodes to access the cache line, determining whether the state is an
  - 7 ambiguous state; and
  - 8 resolving the ambiguous state.
- 1 10. The method of claim 9 wherein maintaining the state comprises maintaining a
  - 2 presence vector indicating whether the first node has a copy of a contents
  - 3 corresponding to the cache line.
- 1 11. The method of claim 10 wherein the presence vector further indicates whether the
  - 2 state is a Shared state or an Exclusive state.
- 1 12. The method of claim 9 wherein resolving the ambiguous state comprises snooping
  - 2 the first node for a current status of the cache line.
- 1 13. The method of claim 12 further comprising receiving a modified contents of the
  - 2 cache line.
- 1 14. The method of claim 13 further comprising updating the memory location.
- 1 15. The method of claim 9 further comprising completing the request.
- 1 16. A shared memory multiprocessor system comprising:

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2 a plurality of node controllers and a switch coupled to each of the plurality of  
3 node controllers, wherein the plurality of node controllers and the switch  
4 are programmed with instructions, the instructions causing the switch to:  
5 maintain a state of a cache line last indicated by a first node controller of the  
6 plurality of node controllers; and  
7 in response to a request from a second node to access the cache line, determine  
8 whether the state is an ambiguous state; and  
9 resolve the ambiguous state.

1 17. The shared memory multiprocessor system of claim 16 wherein the switch further  
2 comprises a presence vector, the presence vector maintaining a status of a cache  
3 line for each corresponding participating node controller of the plurality of node  
4 controllers.

1 18. The shared memory multiprocessor system of claim 17 wherein the presence  
2 vector further indicates if the cache line for the corresponding participating node  
3 controller contains a copy of a memory.

1 19. A machine-readable medium having stored thereon data representing sequences  
2 of instructions, the sequences of instructions which, when executed by a  
3 processor, cause the processor to:  
4 maintain a state of a cache line indicate by a first node;  
5 in response to a request from a second node to access the cache line, determine  
6 whether the state is an ambiguous state; and  
7 resolve the ambiguous state.

1 20. The machine-readable medium of Claim 19 wherein the instructions to maintain  
2 the state further comprises instructions to maintain a presence vector indicating  
3 whether the first node has a copy of a contents corresponding to the cache line.

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- 1 21. The machine-readable medium of claim 20 wherein the presence vector further  
2 indicates whether the state is a Shared state or an Exclusive state.
- 1 22. The machine-readable medium of claim 19 wherein the instructions to resolve the  
2 ambiguous state further comprises instructions to snoop the first node for a  
3 current status of the cache line.
- 1 23. The machine-readable medium of claim 22 further comprising instructions to  
2 receive a modified contents of the cache line.
- 1 24. The machine-readable medium of claim 23 further comprising instructions to  
2 update a memory location designated for storing a contents of the cache line.
- 1 25. The machine-readable medium of 24 wherein the memory location resides on a  
2 third node.
- 1 26. The machine-readable medium of 19 further comprising instructions to complete  
2 the request.